

ADVANCED JOINING OF MATERIALS

CENTER

The Center for Advanced Joining of Materials (CAJM) is developing enhancements and new technologies in friction stir welding (FSW). FSW is a relatively new innovative joining technology that is revolutionizing the way in which aluminum and copper materials are being joined. The objectives are to develop enhancements to this existing technology that will broaden the use of this process in new materials and applications.

TECHNOLOGY

The Center is currently focused on the development and marketing of three technological aspects of FSW: 1) tooling that will last longer, offer the ability to join a wider range of advanced materials, and enable better control of the resulting quality of weld and properties, 2) new control systems and hardware for large scale three-dimensional FSW capabilities; and 3) new methods and novel tooling for joining polymeric materials.

ACCOMPLISHMENTS

All of the first-year milestones have been met. To date, the Center has submitted three provisional patents. Of these, BYU has issued an exclusive license for the patent on super abrasive tools to a local Utah company. Co-development and marketing of these tools are continuing. BYU is presently seeking a partner for co-development on the FSW of polymeric materials. With respect to the direct machining and controls patent, BYU held a meeting in May at which a direct machining prototype was demonstrated. Those in attendance included Ford Motor Company, The Boeing Company, Intel, and Aires (Japan). Of those in attendance, there was a strong agreement that these companies wanted this technology to be moved to commercialization as soon as possible.

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Can you imagine.....

A new method for welding metals and plastics that does not melt the material, does not add new material, and forms a joint that is base metal strong and virtually undetectable from the surrounding material?



As a result, BYU is presently establishing a consortium of end-users to fund the final phases of development. Likewise, BYU is seeking a business partner through which this technology can be licensed and marketed.

*Exclusive Licensing agreement
signed with a Utah company
3 provisional patents submitted*

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